18/11/2015   الأربعاء   م جراب   project-2

$K_a = 0.01$

$A = 1\ m^2$

$\beta = 1/2$

$J = 2$

$K_a = 0.01$

$K_b = 0.1$

$K_t = 10$

$L_a = 1$

$R_a = 1$

مطلوب في خلال 5 أسابيع عمل Controller (Hardware only) للموتور

for $$\frac{\Theta(s)}{V_a(s)} = \frac{K_t}{s(L_a s + R_a)(Js + \beta) + s K_t K_b}$$

$$T.F. = \frac{\Theta(s)}{V_a(s)} * K_a * \frac{1}{As}$$

$$= \frac{K_a K_t}{As^2(L_a s + R_a)(Js + \beta) + As^2 K_t K_b}$$

Task-1

ال Lead Compensator ركبه Block Diagram و جربه

Task 2

لنفس القيم، اشتغل بال PID

PID

error → [PID] → Control Action

- present

$c_p = K_p \; e(t)$ (Proportional)

- Past

$c_I = K_i \int e(t)$ (Integral) (offset)
(stedy state)

- Future

$c_d = K_d \frac{de}{dt} = -K_d \frac{dy}{dt}$ (Differential)
Like Lead Comp.
(Dynamics)

$C = C_p + C_i + C_d$

$$PID = \frac{K_p S + K_i + K_d S^2}{S}$$

task 3

* Integral windup
* Derivative Kick

} search for it as PID problem